Collaborative Large Whale Survey 2015 (CLaWS):
End-of-Leg Report: 9-31 July 2015

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Synopsis

The Collaborative Large Whale Survey 2015 (CLaWS) is a joint field effort by Southwest Fisheries Science Center and Alaska Fisheries Science Center. The 4-month survey is devoted to the assessment of several large whale species off the U.S. and Canadian west coast between northern California and Kodiak, Alaska. Major components of this effort include: (1) the first range-wide assessment of gray whales that summer south of the Aleutian Islands, (2) a dedicated visual line-transect and acoustics survey for right whales in the Gulf of Alaska, and (3) sampling (photographic and biopsy) of blue and fin whales. The work is being supported by SWFSC, AFSC, NOAA Fisheries Office of Science & Technology and Office of Protected Resources, NOAA Fisheries' Alaska Regional Office and the U.S. Marine Mammal Commission. The survey started on 9 July from San Diego amid news coverage and excitement about the large whale research and NOAA Ship *Reuben Lasker* undertaking its first scientific project. The 106-day survey will have five legs (tracklines are shown in Figure 1) and is scheduled to end in San Diego on 9 November 2015. Contact Dave.Weller@noaa.gov for additional information.

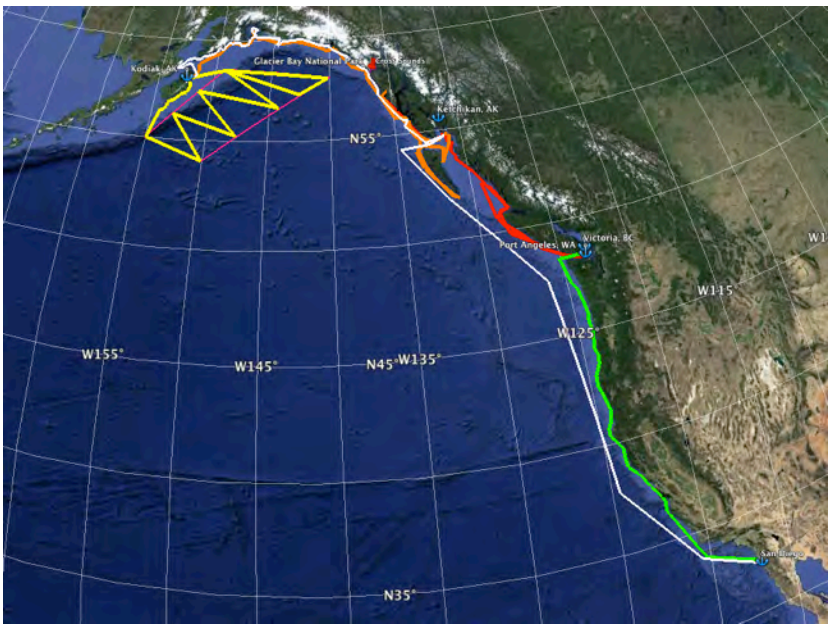

Figure 1. Survey track lines:
Leg 1 = white; Leg 2 = yellow;
Leg 3 = orange; Leg 4 = red;
Leg 5 = green.

Figure 2. NOAA ship *Reuben Lasker* working off Alaska with Mt. Fairweather in the background.

Marine Mammal Observations

The first week of Leg 1 was primarily offshore the U.S. west coast, observations were made of blue and fin whales, killer whales, pilot whales, Risso's dolphins, common dolphins and Dall's porpoise. The observation of pilot whales on 10 July approximately 50 nmi offshore of Piedras Blancas, California (35°40N/122°14W) was especially notable (Figure 3). In the 1960s this species was the most common cetacean sighted off Southern California but by the mid-1980s they had disappeared. Only recently have they returned again to waters off California.

Figure 3. Pilot whale photographed off central California on 10 July 2015.

Another particularly interesting observation was of killer whales on 12 July approximately 170 nmi offshore Newport, Oregon (44°35N/127°55W). This group of 15-20 whales was feeding on an unidentified pinniped species. Images of these “pelagic transients” have killer whale researchers puzzled, as they do not recognize them from existing west coast photo-identification catalogs (Figure 4).

Figure 4. Pelagic transient killer whales photographed off Oregon on 12 July 2015.

On 15 July, NOAA Ship *LASKER* arrived to the Dixon Entrance in Alaska’s southern waters. At this time the survey trackline assumed as close of a parallel line with the coast as bathymetric conditions permitted for safe navigation of the ship. In the following week, humpback whale sightings began to outweigh those of any other cetacean, as many were observed along the coastline travelling, feeding, and breaching. Several pods of killer whales were observed and photographed (see photographic report for details). The survey neared the outer waters of Kodiak, Alaska, during the final week of Leg 1. Here, the survey focused on areas surrounding Ugak Bay, a location having historically documented sightings of gray whales since the late 1990s. Transect lines were generated to systematically cover the area by ship and small boat, focusing on regions where the highest densities of gray whales had been reported in the past. It was in this region that the first gray whales of the survey were encountered (Figure 5). The remaining days of Leg 1 were filled with consistent sightings of gray whales, during which sampling and photographic work continued. Weather was favorable throughout the entirety of Leg 1, with about three days of significant wind and swell and only a few partial afternoons lost to fog.

Figure 5. Gray whale photographed in off Ugak Bay, Alaska, on 28 July 2015.

Search Effort by Day

Date	Time Start/ Time End	Latitude	Longitude	Survey Distance	Average Beaufort
71015	1243	N35:26.72	W122:02.92	17.1 nmi	1.5
	1406	N35:41.29	W122:14.04		
71115	812	N38:27.86	W124:24.73	73.8 nmi	1.3
	1640	N39:46.14	W125:22.75		
71215	756	N42:35.53	W126:50.59	61.8 nmi	1.6
	1600	N44:04.34	W127:38.22		
71315	804	N46:51.65	W129:11.29	80.2 nmi	1.8
	1720	N48:26.17	W130:05.96		
71515	736	N54:38.35	W132:35.17	88.1 nmi	3.3
	1836	N55:51.76	W134:02.51		
71615	630	N55:54.35	W134:03.57	72.4 nmi	2.6
	1637	N56:53.17	W135:41.90		
71815	1025	N57:03.87	W135:32.32	41.6 nmi	3.8
	1810	N57:30.25	W136:09.85		
71915	737	N57:30.54	W136:10.08	41.5 nmi	2.2
	1405	N58:08.22	W136:41.13		
72015	735	N58:11.84	W136:47.08	70.1 nmi	1.3
	1900	N59:04.42	W138:34.53		
72115	731	N59:04.93	W138:39.17	50.6 nmi	1.3

	1929	N59:37.26	W140:20.82		
72215	732	N59:36.50	W140:21.24	84.3 nmi	2.6
	1720	N59:59.34	W143:01.42		
72315	1307	N59:42.55	W144:33.47	32.9 nmi	3.6
	1840	N60:07.50	W145:08.51		
72415	729	N60:07.85	W145:10.21	72.9 nmi	3.0
	1842	N59:51.34	W147:13.84		
72515	730	N59:50.67	W147:16.12	80.2 nmi	2.7
	1840	N59:35.66	W149:30.86		
72615	732	N59:34.27	W150:02.80	75.6 nmi	3.5
	1841	N58:59.41	W152:12.48		
72715	730	N58:59.84	W152:10.80	84.6 nmi	2.4
	1841	N57:43.36	W152:08.02		
72815	1458	N57:25.21	W152:01.45	9.4 nmi	2.0
	1617	N57:18.48	W152:16.18		
72915	1449	N57:20.24	W152:29.21	4.4 nmi	2.0
	1608	N57:15.98	W152:23.32		
73015	734	N57:12.94	W152:38.10	27.5 nmi	3.2
	1509	N57:20.23	W152:26.32		
73115	747	N57:21.36	W152:26.00	13.1 nmi	3.0
	1801	N57:15.03	W152:17.36		

Code	Species	Total number
016	*Delphinus capensis*	1
036	*Globicephala macrorhynchus*	1
037	*Orcinus orca*	23
040	*Phocoena phocoena*	11
044	*Phocoenoides dalli*	34
069	*Eschrichtius robustus*	19
070	*Balaenoptera sp.*	8
074	*Balaenoptera physalus*	23
076	*Megaptera novaeangliae*	84
077	unid. dolphin	3
079	unid. large whale	58
096	unid. cetacean	1
177	unid. small delphinid	4
199	fin/sei/Bryde's	4
477	unid. porpoise	4
	Total	**278**

Biopsy Sampling

Given the lack of gray whale sightings during most of Leg 1, sampling opportunities were limited to the final four days, when we neared the waters in and offshore of Ugak Bay, Kodiak Island, Alaska. Several groups of gray whales were encountered in this area. While obtaining biopsy samples from these whales proved challenging, we were able to collect tissue samples from two individuals in different groups. In most of the groups that we encountered, whales were observed defecating frequently, indicating that collecting fecal samples may be feasible during future legs and could facilitate DNA extraction from a larger number of individuals.

Although no biopsy samples were obtained from other species, a sample and associated photographs from a small humpback whale whose carcass was found floating in Ugak Bay was collected. General health assessment data were collected from this specimen and sent to the Alaska stranding coordinator.

Table 1. Tissue samples collected during Leg 1.

Species	Common Name	No. of samples collected	Comments
Eschrichtius robustus	Gray whale	2	
Megaptera novaeangliae	Humpback whale	1	Collected from floating carcass in Ugak Bay

Photo-identification

A photo-identification catalogue incorporating all gray whales photographed during Leg 1 was completed. Currently, this catalogue contains 13 whales. Thus far, comparison of gray whale photographs from different sightings has revealed that many of the same whales were photographed on multiple days in the same general area.

Leg 1 photo-identification catalogues were also compiled for the pilot whales seen while surveying off southern California (n = 15 individuals identified) and for the killer whales photo-identified (n=90). Photographs of these individuals will be compared to the existing photo-identification catalogues maintained at SWFSC and by other groups in the near future.

Table 2. Photo-identification data collected during Leg 1.

Species Code	Scientific Name	Common Name	No. Sightings	No. Photos	Comments
036	*Globicephala macrorhynchus*	Short-finned pilot whale	1	234	During transit to start of the study area
037	*Orcinus orca*	Killer whale	12	2520	Two groups (n=1652 photos) photographed during transit to study area

069	*Eschrichtius robustus*	Gray whale	9	1368	
076	*Megaptera novaeangliae*	Humpback whale	1	53	
099	*Balaenoptera borealis/edeni*	Rorqual identified as a Sei or Bryde's whale	1	3	

Acknowledgments

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Leg 1 Scientific party, before (L) and after (R). Left photo L to R: S. Martínez, H. Colley, S. Yin, D. Weller, A. Lang and C. Bryant. Right photo front row L to R: S. Yin, C. Bryant, A. Lang. Back row L to R: D. Weller, M. Simpson, S. Martínez.